jean-françois**pambrun**

researcher | engineer | software developer

about

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canada

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linkedin://jpambrun
github://jpambrun

languages
french/english

programming
java, javascript
matlab, python
linux, git, c, c++
latex, tensorflow

standards
dicom, ihe, hl7
jpeg 2000, jpip

interests
medical imaging
image compression
deep learning
rendering

† not a member of the OIQ
‡ fast-track doctoral
admission without obtaining
a master's degree

education

2011-2016 **Ph.D. in electrical engineering**   École de technologie supérieure (ÉTS)
improving medical image compression and transmission
· *develop a novel image quality metric adapted to medical imaging*
· *propose a novel JPEG 2000 bit allocation mechanism*
· *improve streaming of large volumes (CT, MR, etc.)*

2009-2010 **M.Sc. in electrical engineering (incomplete‡)**   École de technologie supérieure (ÉTS)
evaluation of the diagnostic quality of lossy compressed medical images
· *research medical image quality assessment and diagnostic losslessness*
· *quantify the CT acquisition parameters that affect compressibility*

2005-2009 **B.ing. in electrical engineering**   École de technologie supérieure (ÉTS)
information technologies and telecommunication

experience

2016 (dec-) **software developer**   nucleus.io
cloud-based diagnostic workstation with client-side MPR
· *design and implement a client-side multi-planar reconstruction renderer*
· *design and implement a 3d compression algorithm for fast streaming*
· *design and implement annotation tools such as length, Cobb angle, etc*
· *write highly optimized code using the latest web technologie*
· *ensure support for CT, MR, PET, ultrasound, large tomosynthesis, etc*

2016 (jun-dec) **postdoctoral fellow**   CHUM research centre
improve image-guided prostate cancer brachytherapy treatments
· *implement MR-Ultrasound fusion and segmentation using machine learning*
· *study the impact of dual energyCT (DECT) on current fusion algorithms*
· *evaluate an experimental non-rigid MR-UR fusion workflow in the OR*

2016 (sep-dec) **lecturer**   École polytechnique de montréal
procedural programming (inf1005a)
· *teach introductory procedural programming using MATLAB*

2009-2016 **lecturer**   École de technologie supérieure (ÉTS)
software development environment (ele116)
· *teach object oriented programming with JAVA*
· *discuss development tools such as IDEs, debuggers and git*
image processing and analysis (ele747)
· *teach image processing techniques using MATLAB*
· *discuss topics such as FFTs, edge detectors, compression, etc.*

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experience (cont.)

2007-2014	**teaching assistants**	École de technologie supérieure (ÉTS)

healthcare distributed systems (gts840)
· supervise and grade graduate student lab assignements
· discuss topics such as HL7, IHE and DICOM
software development environment (ele116)
image processing and analysis (ele747)

2009 (jan-sep)	**software developer**	CAE inc.

head-up display simulation for military flight simulators
· *implement a c/c++ modules to stimulate and simulate avionic systems*
· *implement an OpenGL solution to simulate a HUD*
· *work with clients to fix issues and achieve acceptance*

2006-2008	**research assistant**	École de technologie supérieure (ÉTS)

implementation of a standard compliance validation tool for hl7v3 implementation and evaluation of a medical image streaming framework

awards

2017	**NSERC postdoctoral fellowship (declined)**	90,000$
2017	**FRQNT postdoctoral fellowship (declined)**	70,000$
2016	**GRSTB postdoctoral fellowship**	18,000$
2011	**NSERC doctoral Alexander-Graham-Bell scholarship**	105,000$
2011	**ÉTS excellence graduate student scholarship**	60,000$
2011	**FRQNT doctoral research scholarship (declined)**	60,000$
2009	**FRQNT master's research scholarship**	30,000$
2006	**NSERC undergraduate student research awards**	4,500$

committee and board memberships

2013-2016	**board member of an NPO**	Association étudiante de l'ÉTS

vice-president of services
academic commission student representative
disciplinary committee student representative

publications

articles in peer-reviewed journals

The utilization of MRI in the operating room
  Ménard C , Pambrun J-F, Kadoury S
  Brachytherapy. *Elsevier, 2017*

Computed Tomography Image Compressibility and Limitations of Compression Ratio-Based
  Guidelines
  Pambrun J.F. , Noumeir R.
  Journal of Digital Imaging. *Springer Science, 2015*

Teaching DICOM by Problem Solving.
  Noumeir R. , Pambrun J.F.
  Journal of Digital Imaging. *Springer Science, 2012*

Streaming of medical images using JPEG2000 interactive protocol
  Pambrun J.F. , Noumeir R.
  International Journal of Innovative Computing and Applications. *2012*

Using JPEG 2000 Interactive Protocol to Stream a Large Image or a Large Image Set
  Noumeir R. , Pambrun J.F.
  Journal of Digital Imaging. *Springer Science, 2010*

international peer-reviewed conferences/proceedings

Limitations of the SSIM quality metric in the context of diagnostic imaging
  Pambrun J.F. , Noumeir R.
  IEEE International Conference on Image Processing (ICIP), 2015

Compressibility variations of JPEG2000 compressed computed tomography
  Pambrun J.F. , Noumeir R.
  IEEE International Conference of the Engineering in Medicine and Biology Society (EMBC), 2013

Learning DICOM by solving real clinical problems
  Noumeir R. , Pambrun J.F.
  IEEE-EMBS International Conference on Biomedical and Health Informatics, 2012

Perceptual quantitative quality assessment of JPEG2000 compressed ct images with various
  slice thicknesses
  Pambrun J.F. , Noumeir R.
  IEEE International Conference on Multimedia and Expo, 2011

Interoperability testing of integration profiles based on HL7 standard version 3
  Pambrun J.F. , Noumeir R.
  IEEE International Conference on Information Technology and Applications in Biomedicine, 2010

Hands-on Approach for Teaching HL7 version 3
  Noumeir R. , Pambrun J.F.
  IEEE International Conference on Information Technology and Applications in Biomedicine, 2010

Streaming of Medical Images Using JPEG 2000 Interactive Protocol
  Noumeir R. , Pambrun J.F.
  IEEE International Conference on Systems, Signals and Image Processing. 2010

Interoperability Testing Software for Sharing Medical Documents and Images
  Berube R. , Pambrun J.F, Noumeir R.
  IEEE International Conference on Internet and Web Applications and Services. 2010

Images within the Electronic Health Record
  Noumeir R. , Pambrun J.F.
  IEEE International Conference on Image Processing. 2009